Computer Science Engineering

Semester VI						
S. No	**Course code**	**Course name**	**L**	**T**	**P**	**C**
1	CS304T	Compilers	3	0	0	6
2	CS304L	Compilers Lab	0	0	3	3
3	EE301O	Technical Writing (P/NP) No Graded	1	0	0	2
4	EE101O	Formal Communications No Graded	1	0	0	2
5		Electives				24
Total credits						**37**

Computer Science Engineering

1	**Title of the course** (L-T-P-C)	**Compilers** **(3-0-0-6)**
2	**Pre-requisite courses(s)**	Exposure to Data Structures and Algorithms, Computer Architecture, Automata Theory
3	**Course content**	The compiled and interpreted execution models. Lexical analysis and parsing using lex and yacc. LR parsers, Scope and visibility analysis. Data layout and lifetime management of data. Runtime environment. Dynamic memory allocation and Garbage collection. Translation of expressions, control structures, and functions. Code generation and introduction to optimizations (local and global). Lattice Theory, Optimizations- dataflow, control flow, reaching definition, liveness analysis, code transformation-tiling, fusion.
4	**Texts/References**	**1.** Alfred V. Aho, Monica S. Lam, Ravi Sethi and Jeffrey D.Ullman: Compilers: Principles, Techniques, and Tools, 2/E, AddisonWesley 2007. **2.** Andrew Appel: Modern Compiler Implementation in C/ML/Java, Cambridge University Press, 2004 **3.** Dick Grune, Henri E. Bal, Cerial J.H. Jacobs and Koen G. Langendoen: Modern Compiler Design, John Wiley & Sons, Inc. 2000. **4.** Michael L. Scott: Programming Language Pragmatics, Morgan Kaufman Publishers, 2006. **5.** Fisher and LeBlanc: Crafting a Compiler inC.

1	**Title of the course** (L-T-P-C)	**Compilers Lab** **(0-0-3-3)**
2	**Pre-requisite courses(s)**	Exposure to Data Structures and Algorithms, Computer Architecture, Automata Theory, and a programming language such as C/C++/Java.
3	**Course content**	Design and implementation of a scanner using scanner generator. Design and implementation of a parser using parser generator. Symbol table generation, Semantic actions for expressions, control structures, and functions. Implementing liveness analysis and applying it to register allocation.
4	**Texts/References**	**1.** Alfred V. Aho, Monica S. Lam, Ravi Sethi and Jeffrey D.Ullman: Compilers: Principles, Techniques, and Tools, 2/E, AddisonWesley 2007. **2.** Andrew Appel: Modern Compiler Implementation in C/ML/Java, Cambridge University Press, 2004 **3.** Dick Grune, Henri E. Bal, Cerial J.H. Jacobs and Koen G. Langendoen: Modern Compiler Design, John Wiley & Sons, Inc. 2000. **4.** Michael L. Scott: Programming Language Pragmatics, Morgan Kaufman Publishers, 2006. **5.** Fisher and LeBlanc: Crafting a Compiler in C.

1	**Title of the course** (L-T-P-C)	**Technical Writing** (1-0-0-3)
2	**Pre-requisite courses(s)**	None
3	**Course content**	LaTeX and plotting tools (Microsoft tools, LaTeXDraw, R, etc.Technical abstract & report writing Professional writing ethics: Plagiarism and citations Technical presentation making: short-duration vs long-duration presentations Technical elevator pitch and poster presentation
4	**Texts/References**	**1.** A Manual for Writers of Research Papers, Theses, and Dissertations, Kate L Turabian, Ninth Edition, The University of Chicago Press. **2.** Communication Skills for Engineers and Scientists, Sangeeta Sharma and Binod Mishra, Second Edition, PHI Learning. **3.** The elements of style, William Strunk Jr and E White, Fourth Edition, Pearson Education. **4.** New Approach to Research EthicsUsing Guided Dialogue to Strengthen Research Communities, Henriika Mustajoki and Arto Mustajoki, First Edition,Routledge Publications.

1	**Title of the course** (L-T-P-C)	**Formal Communications (1-0-0-2)**
2	**Pre-requisite courses(s)**	None
3	**Course content**	Written communication: Formal Letter writing, Formal email writing, communication etiquette, grammar, comprehension, essay writing, Reading Verbal communication: communication etiquette, comprehension, group discussions, public speaking, Presentations and interpersonal communication, Elevator pitch talks
4	**Texts/References**	**1.** Wren and Martin "High School English Grammar and Composition" **2.** William strunk Jr. "The elements of style" Sangeeta Sharma and Binod Mishra, "Communication skills for engineersand scientists" **3.** Sangeeta Sharma and Binod Mishra, "Communication skills for engineersand scientists"